# **Obtaining Proxies**

This page describes the ways an application can obtain a proxy.

On this page:

- Obtaining a Proxy from a String
- Obtaining a Proxy from Properties
- Obtaining a Proxy using Factory Methods
- Obtaining a Proxy by Invoking Operations

### Obtaining a Proxy from a String

The communicator operation stringToProxy creates a proxy from its stringified representation, as shown in the following C++ example:

```
C++
Ice::ObjectPrx p = communicator->stringToProxy("ident:tcp -p 5000");
```

## Obtaining a Proxy from Properties

Rather than hard-coding a stringified proxy as the previous example demonstrated, an application can gain more flexibility by externalizing the proxy in a configuration property. For example, we can define a property that contains our stringified proxy as follows:

```
MyApp.Proxy=ident:tcp -p 5000
```

We can use the communicator operation propertyToProxy to convert the property's value into a proxy, as shown below in Java:

```
Java

Ice.ObjectPrx p = communicator.propertyToProxy("MyApp.Proxy");
```

As an added convenience, propertyToProxy allows you to define subordinate properties that configure the proxy's local settings. The properties below demonstrate this feature:

```
MyApp.Proxy=ident:tcp -p 5000
MyApp.Proxy.PreferSecure=1
MyApp.Proxy.EndpointSelection=Ordered
```

These additional properties simplify the task of customizing a proxy (as you can with proxy methods) without the need to change the application's code. The properties shown above are equivalent to the following statements:

```
Java

Ice.ObjectPrx p = communicator.stringToProxy("ident:tcp -p 5000");
p = p.ice_preferSecure(true);
p = p.ice_endpointSelection(Ice.EndpointSelectionType.Ordered);
```

The list of supported proxy properties includes the most commonly-used proxy settings. The communicator prints a warning by default if it does not recognize a subordinate property. You can disable this warning using the property Ice.Warn.UnknownProperties.

Note that proxy properties can themselves have proxy properties. For example, the following sets the PreferSecure property on the default locator's router:

```
Ice.Default.Locator.Router.PreferSecure=1
```

### Obtaining a Proxy using Factory Methods

Proxy factory methods allow you to modify aspects of an existing proxy. Since proxies are immutable, factory methods always return a new proxy if the desired modification differs from the proxy's current configuration. Consider the following C# example:

```
C#

Ice.ObjectPrx p = communicator.stringToProxy("...");
p = p.ice_oneway();
```

ice\_oneway is considered a factory method because it returns a proxy configured to use oneway invocations. If the original proxy uses a different invocation mode, the return value of ice\_oneway is a new proxy object.

The checkedCast and uncheckedCast methods can also be considered factory methods because they return new proxies that are narrowed to a particular Slice interface. A call to checkedCast or uncheckedCast typically follows the use of other factory methods, as shown below:

```
C#

Ice.ObjectPrx p = communicator.stringToProxy("...");
Ice.LocatorPrx loc = Ice.LocatorPrxHelper.checkedCast(p.ice_secure(true));
```

Note however that, once a proxy has been narrowed to a Slice interface, it is not normally necessary to perform another down-cast after using a factory method. For example, we can rewrite this example as follows:

```
C#

Ice.ObjectPrx p = communicator.stringToProxy("...");
Ice.LocatorPrx loc = Ice.LocatorPrxHelper.checkedCast(p);
loc = (Ice.LocatorPrx)p.ice_secure(true);
```

A language-specific cast may be necessary, as shown here for C#, because the factory methods are declared to return the type ObjectPrx, but the proxy object itself retains its narrowed type. The only exceptions are the factory methods ice\_facet and ice\_identity. Calls to either of these methods may produce a proxy for an object of an unrelated type, therefore they return a base proxy that you must subsequently down-cast to an appropriate type.

### Obtaining a Proxy by Invoking Operations

An application can also obtain a proxy as the result of an Ice invocation. Consider the following Slice definitions:

```
Slice
interface Account { ... };
interface Bank {
   Account* findAccount(string id);
};
```

Invoking the findAccount operation returns a proxy for an Account object. There is no need to use checkedCast or uncheckedCast on this proxy because it has already been narrowed to the Account interface. The C++ code below demonstrates how to invoke findAccount:

# C++ BankPrx bank = ... AccountPrx acct = bank->findAccount(id);

Of course, the application must have already obtained a proxy for the bank object using one of the techniques shown above.

#### See Also

- Communicators
  Proxy and Endpoint Syntax
  Proxy Methods
  Ice Proxy Properties
  Ice Warning Properties